

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Library Philosophy and Practice (e-journal)

Libraries at University of Nebraska-Lincoln

2021

Measuring the Extent of Applying Metadata and Dublin Core Standards in University Libraries of Jordan: An Analytical Study

Omar Al Jaradat

Balqa Applied University, omjar2@bau.edu.jo

Fatema Ahmad Al- Samraie

Balqa Applied University, fatema-samari@bau.edu.jo

Follow this and additional works at: <https://digitalcommons.unl.edu/libphilprac>



Part of the [Library and Information Science Commons](#)

Al Jaradat, Omar and Al- Samraie, Fatema Ahmad, "Measuring the Extent of Applying Metadata and Dublin Core Standards in University Libraries of Jordan: An Analytical Study" (2021). *Library Philosophy and Practice (e-journal)*. 5524.

<https://digitalcommons.unl.edu/libphilprac/5524>

Measuring the Extent of Applying Metadata and Dublin Core Standards in University Libraries of Jordan: An Analytical Study

Dr. Omar Mohammad Al- Jaradat

Balqa Applied University

Irbid College University- Department of Library & Information Science

Omjar2@bau.edu.jo

Dr. Fatema Ahmad Al- Samraie

Balqa Applied University

Irbid College University- Department of Library & Information Science

fatema-samari@bau.edu.jo

ABSTRACT

The study aims to identify the extent of Jordanian Public and Private University Libraries to implement the International Indexing standards of Metadata and Dublin Core at its websites. The study adopted the descriptive analytical method in two stages; the first is to analyze the websites according to Dublin Core standard in a manual way while the second stage is to use the Metachecker.net program as one of the famous software on the Internet that contains all the Metadata Tags for websites analysis, which enables the analysis of Metadata. The analysis program was able to identify (6) University libraries sites that have an independent link out of (27) analyzed sites, which are (University of Jordan, Yarmouk University, Balqa Applied University, Hussein Bin Talal University, Middle East University, and American University in Madaba) while other libraries weren't represented by search engines. It turned out that (15) tags were used unevenly by the libraries' sites under study, where Balqa Applied University, Hussein Bin Talal University, and Middle East University Libraries were committed to use (11) tags at (50%), and also the studied libraries weren't interested in indexing its sites based on Dublin Core Standard despite its importance. The study recommends that libraries should formulate the Metadata Tags of their Websites and create separate sites other than main sites of the university, and activate it to be accessed by the search engines. Libraries should also conduct continuous evaluation of their sites through analysis programs deployed on the Internet to avoid errors, improve and develop its services, and keep pace with the modern technology.

KEYWORDS: Dublin Core & Metadata Standards, University Libraries

1. INTRODUCTION

Internet sites and information sources need to be indexed and organized by those responsible for them to facilitate the process of identification by search engines and their beneficiaries. Several standards have emerged to calculate the accuracy of organization and completeness of bibliographic information needed to describe these sources, and to facilitate their access with high speed and accuracy. Among the most prominent was Dublin Core Standard due to its reliance on bibliographic elements that are within well-known indexing rule of Resource Description and Access (RDA). These elements are familiar to indexers and those working in the field of organizing information and preparing it for use.

This study pursues to highlight the commitment level of Jordanian public and private university libraries sites to Dublin Core and Metadata Standards in indexing the sites of their University libraries during the period of study preparation (2019), and to possibility refer to these software packages for purposes of evaluating sites.

The study problem resembled in the weak commitment of Jordanian public and private University libraries sites to implement standards of indexing Internet sites, represented in Dublin Core and Metadata which affect their access to search engines, retrieve information from it, and benefit from it by researchers. Study made an attempt to answer the following questions:

- What is the actual application level of Metadata Tags to Websites of Jordanian public and private university libraries?
- How committed are public and private university library sites in Jordan to implementing the Dublin Core Standard?
- Is the process of searching and accessing these sites easy through search engines?

2. STUDY OBJECTIVES

This study aims to:

- Identifying the actual application level of Metadata Tags at the Jordanian Public and Private University Libraries.
- Identifying the commitment extent of Public and Private University Library Sites in Jordan to indexing their sites based on the Dublin Core standard.

3. STUDY IMPORTANCE

The importance of study lies in the commitment extent to adhere indexing at the Jordanian Public and Private University Libraries Sites according to Dublin Core and Metadata International Standards, which makes the process of searching for them in search engines easy, fast, and accurate to increase their efficiency and the quality level of providing their services to beneficiaries.

4. CONCEPTUAL FRAMEWORK

Metachecker.net software

It is one of the best programs for analyzing and evaluating Metadata on the Websites that is available for free, which is keen to show all tags of available Metadata with a detailed evaluation of their position in Websites. This software is one of the most famous free software on the Internet and its work mechanism as follows:

–Software Interface:

Websites analyzed in a way that URL copied in its place, as in the following figure:

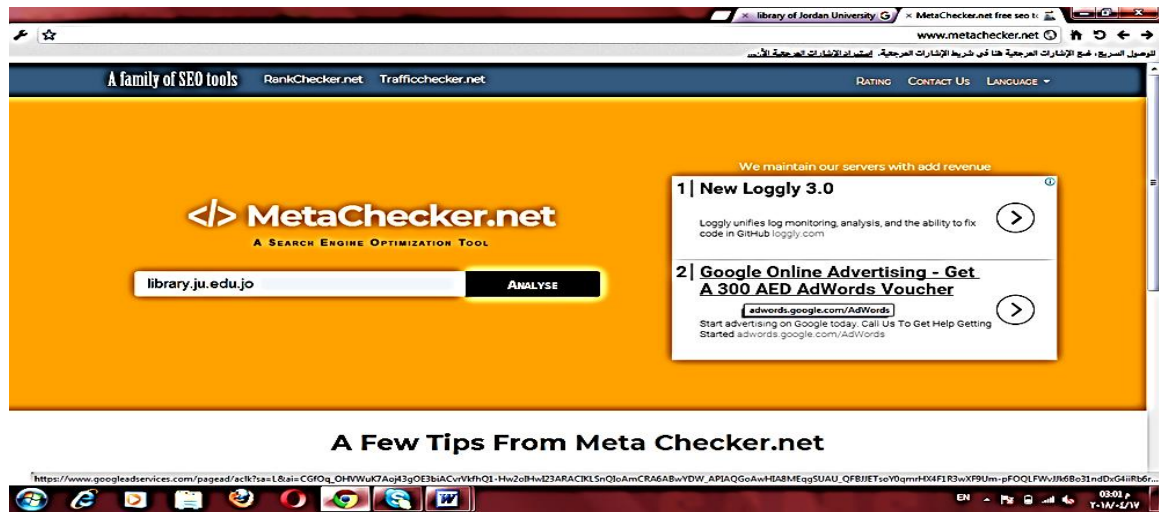


Figure (1) *Software Interface*

–Tags Analyzed by Software:

It analyzed as a set of Metadata on Websites Tags, such as

Title: it's the address of site where the title must contain 10-70 characters.

Description: it's a general and brief description of the site that clarifies it, which must contains between (60-170) characters.

Keywords: its keywords on the site to be analyzed that enable access to it through search engines and represent content within the site.

Open Graph (OG) Meta Tags: it's snippets of code that control how URLs displayed whenever shared on social media, and it's determined by four main elements: (address of the site, URLs identifying the site, image of the site, and the type of site).

There are also other tags for Metadata that analyzed by Software related to site design, such as encrypted content, printability of the site, frameworks that the site contains which may hinder its indexing process, internal and external links, usability, and hypertext ratio or what is known as hyperlinks of the site.

– Mechanism of Displayed Results:

Software uses four symbols to clarify, analyze, and evaluate all Metadata Tags, which show the extent that University of Jordan Library Website committed to: (✓, ⊙, ✗, △).

- The sign (✓) means that Metadata Tags implemented perfectly, colored green.
- The sign (⊙) means its good in implementing Metadata Tags, colored gray.
- The sign (△) means it's acceptable in implementing Metadata Tags, colored yellow.
- The sign (✗) means it doesn't implement Metadata Tags, colored red.

It will be clarified by analyzing the sites studied, and the total number of Metadata Tags is (22) which divided into: (content, links, site's keywords, site's ease of use, and documents included in the site). Images at figures (2) & (3) show an example of

analyzing Metadata Tags using Metacheer.net Software of University of Jordan Library Website:

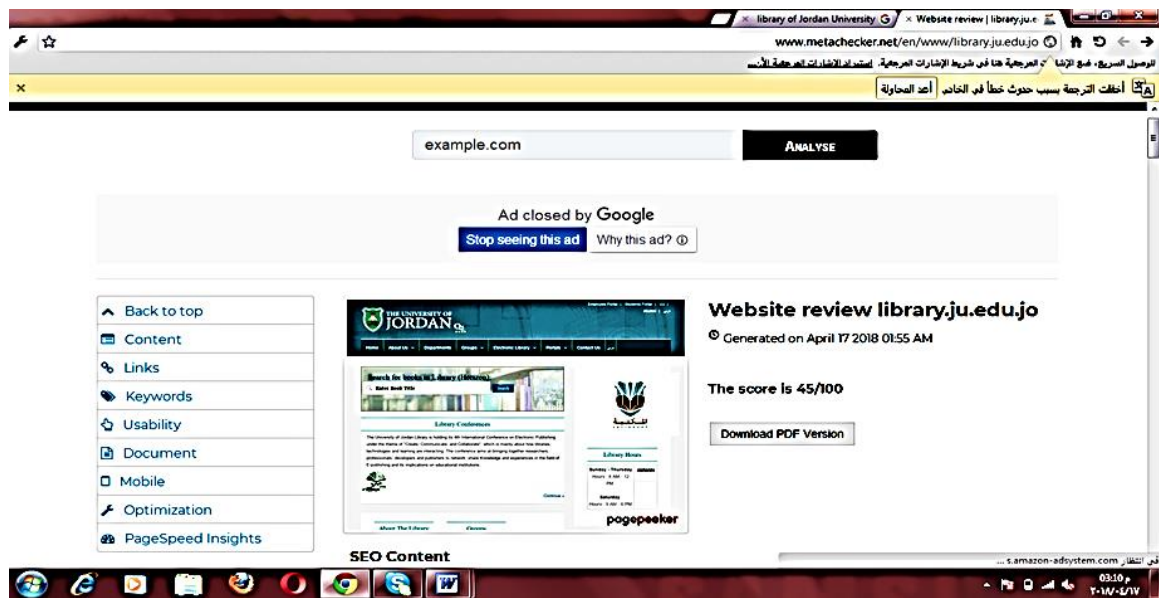


Figure (2) Tags using Metacheer.net Software of University of Jordan Library Website

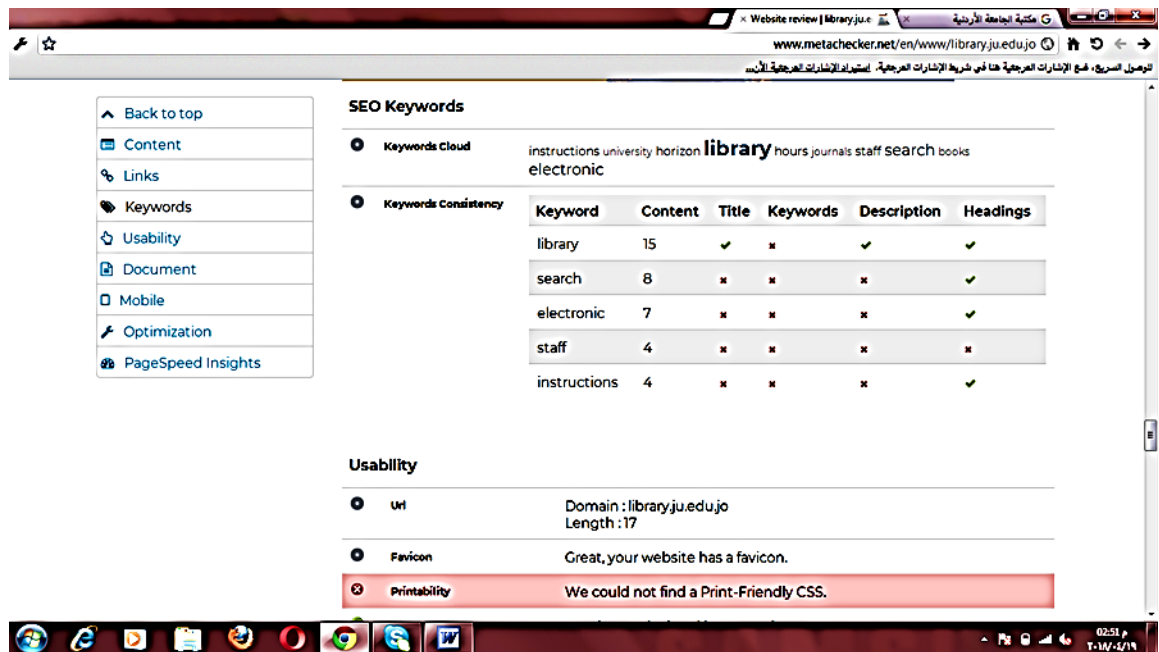


Figure (3) Tags using Metacheer.net Software of University of Jordan Library Website

5. METHODS

To achieve study goals, researchers implemented a plan to execute the work represented by the following steps:

- Survey the Jordanian Public and Private Universities Sites.
- Prepare a list of University Library's Sites that have a Separate Websites for them.

–Analyze libraries that have separate sites according to the Metachecker.net Analysis Program and verify the commitment extent of those sites to Metadata to facilitate its approval and retrieval by search engines on Internet.

–Close with results and recommendations based on analysis of studied sites.

Study Population:

The study measures and analyzes the implementation extent of Dublin Core and Metadata International Standards of Indexing on Websites of Public and Private University Libraries in Jordan on Internet, as shown in table (1) below

Table (1) List of Public and Private Jordanian Universities and its libraries Sites

| No. | Library | (URL) |
|----------------------|---|---|
| Public Universities | | |
| 1 | Library of University of Jordan | https://library.ju.edu.jo |
| 2 | Library of Yarmouk University | https://library.yu.edu.jo/ |
| 3 | Library of Mut'ah University | https://www.mutah.edu.jo |
| 4 | Library of Jordan science and Technology University | www.just.edu.jo/ar/library |
| 5 | Library of Al Al-Bayt University | https://www.aabu.edu.jo/lib/lib.html |
| 6 | Library of Hashemite University | https://hu.edu.jo/unit/default.aspx |
| 7 | Library of Al- Balqa' Applied University | http://bau.coe.deep-knowledge.net/BAU |
| 8 | Library of Al-Hussein Bin Talal University | http://ahulibrary.coe.deep-knowledge.net |
| 9 | Library of Tafila Technical University | http://www.ttu.edu.jo/lib/main |
| 10 | Library of German Jordanian University | http://www.gju.edu.jo |
| Private Universities | | |
| 11 | Library of American University of Madaba (AUM) | http://library.aum.edu.jo/ |
| 12 | Library of Jadara University | http://www.jadara.edu.jo |
| 13 | Library of Al-Ahliah Amman University | http://www.ammanu.edu.jo |
| 14 | Library of Princess Sumaya University for Technology (PSUT) | http://www.psut.edu.jo/ |
| 15 | Library of Philadelphia University | http://library.philadelphia.edu.jo/ |
| 16 | Library of Applied Science Private | http://www.asu.edu.jo |

| | University | |
|----|--|---|
| 17 | Library of University of Petra | https://www.uop.edu.jo |
| 18 | Library of Isra University | http://scac.iu.edu.jo/library |
| 19 | Library of Jerash University | http://www.jpu.edu.jo |
| 20 | Library of Al-Zaytonah University of Jordan | http://www.zuj.edu.jo |
| 21 | Library of Zarqa University | http://zu.edu.jo |
| 22 | Library of Irbid National University | http://www.inu.edu.jo |
| 23 | Library of Middle East University | http://library.meu.edu.jo/ |
| 24 | Library of Ajloun National University | http://www.anu.edu.jo |
| 25 | Library of Amman Arab University | www.aau.edu.jo/Library |
| 26 | Library of Aqaba University Of Technology | http://www.aut.edu.jo |
| 27 | Library of Al-Hussein Technical University (HTU) | https://www.cpf.jo |

6. PREVIOUS STUDIES

The study of (Al-Busaidi & Al-Hinai, 2018) aims to highlight the commitment level of library sites available on the Internet; at the public and private universities in the Sultanate of Oman to values of Metadata and Dublin Core Standards, the quality of its implementation, and the role of information specialist in it. The study used the descriptive analytical approach through the use of famous Metachecker.net program, where the study revealed uneven use of 13 Metadata Tags and Sultan Qaboos University Library Site got the highest with (12) Tags at (37.5%). The study recommended the need to intensify the necessary efforts to rehabilitate libraries' sites, in accordance with the international standards.

The study of (As-Said, 2020) aimed to analyze the extent of Metadata implementation at the Algerian Electronic Newspaper Websites, in terms of form and content, where the study sample consists of (4) newspapers published in Arabic that complied with the Dublin Core and Metadata Standard represented by Metachecker.net software. The study found that journals sites don't adhere to the Dublin Core Standard but follow an acceptable method, in term of content, title, description, and language coverage.

7. STATISTICAL ANALYSIS

–Universities Websites according to the effectiveness of URL that Metadata Software was able to analyze, where table (2) shows that number of libraries sites that have separate site from the main university site amounted to 6 sites at (22.2%) while the

largest number of universities have library sites within the university site amounted to 19 sites at (70.3%). There are also two sites the analysis program didnot reach because its inactive, which are University of Science & Technology Library Official Site and Philadelphia University Library Site. Therefore, the six universities' sites that have separate websites on the Internet have been analyzed.

Table (2) University Libraries sites by the analyzable link through Metachecer.net analysis program

| Libraries Sites | Sites that have a separate URL & have been analyzed | Sites that have same URL of the University | Sites that have URL & haven' t been analyzed as it' s inactivated | Total |
|------------------------|--|---|--|--------------|
| Number of Sites | 6 | 19 | 2 | 27 |
| Percentage | 22.2 | 70.3 | 7.5 | 100% |

–Analysis of the Jordanian university libraries' sites according to the Metachecker.net analysis, where tags within Metachecker Software equals to 22 tags and the correct formualtion of Metadata Tags in Libraries' Sites is very important to optimize those sites. The following table represents a vertical analysis of Metadata Tags within Libraries' Sites of study topic that are equal to 6 University's Library Sites out of 27 sites avialable on the Internet, which have been identified and accessed by Metachecker.net Software and results of studied sites' analysis showed below:

Table (3) Analysis of Metadata Tags in the Sites of Jordanian University Libraries as Presented by Metachecker.net Software

- The sign (✓) means that Metadata Tags implemented perfectly, colored green.
- The sign (⊙) means its good in implementing Metadata Tags, colored gray.
- The sign (△) means it's acceptable in implementing Metadata Tags, colored yellow.
- The sign (X) means it doesn't implement Metadata Tags, colored red.

| | | | | | | | |
|-----------------|------------|------------|------------|------------|------------|------------|-------------|
| Encoding | %100 | %100 | %100 | %100 | %100 | %100 | %100 |
| W3C Validity | %0 | %0 | %0 | %0 | %0 | %0 | %0 |
| Email Privacy | %0 | %100 | %0 | %100 | %100 | %100 | %67 |
| Deprecated HTML | %0 | %100 | %100 | %100 | %100 | %0 | %67 |
| Sum | 59% | 50% | 64% | 50% | 50% | 45% | 53% |

It is clear from table (3) that 15 out of 22 tags used in an excellent way, which are (Library of Al-Balqa' Applied University(64%), libraries of University of Jordan(59%) Library of Al-Hussein Bin Talal University & Library of Middle East University and Yarmouk University). These sites were the most inclusive with 11 tags at (50%) each, which could be attributed to the existence of specialized employees in the field of library as well the continuous support from the center of information systems in these Universities. Library of American University of Madaba (AUM) followed them by 10 tags at (45%) but were the least to use Metadata, but if the table analyzed horizontally study found that 2 tags used in a good way which are (Favicon, and URL) distributed evenly on all studied libraries sites. Two tags used in an acceptable way represented by Title Tags in Library of Al-Hussein Bin Talal University and Library of Yarmouk University while Description Tag used in an acceptable way in Al-Hussein Bin Talal University, Library of Al-Balqa' Applied University, and Library of University of Jordan. There are some tags that were poorly used and did not follow standards across the libraries' sites.

– Analysis of Metadata Tags according to Metachecker.net sections

First: Content

This part includes the following tags: Title, Description, keywords, OG Meta Properties, Headings, Images, Text/Html, Flash, and Ifram.

–Title:

It appears that libraries' sites which formulated its titles according to the standard were 4 sites at (67%) between (70-100) characters, and those are (Library of University of Jordan with 28 characters, Library of Al-Balqa' Applied University with 50 characters, Library of Middle East University with 28 characters, and Library of American University of Madaba (AUM) with 48 characters. Library of Yarmouk University has the least numbers of characters with only 8 and include the word main, which is one of the errors done when bluiding Metadata Tags committed by library sites. Library of Al-Hussein Bin Talal University has the longest with 94 characters and include words that are irrelevant to the content and didn't have any restored retrival significance whenever searched by search engines represented in the Prince Hussein Bin Abdullah II Library-Powered by Deep Knowledge™.

–Description:

The length of description should be between (70-160) characters according to standards, shows the sites od analyzed sites of libraries according to description. It appears that description tag wasnot used correctly and there are 4 sites that did not use description

tag at all which are (Library of Yarmouk University, Library of American University of Madaba (AUM), and Library of Middle East University and Library of Al-Hussein Bin Talal University) while 2 sites used in an acceptable way, such as University of Jordan used 28 characters which is less than the required but Library of Al- Balqa' Applied University used 368 characters more than it required. This indicates that persons in charge of Al-Balqa' Applied University' sites in a correct way and describe it appropriately.

–Keywords:

keywords tags were poorly used with (33%) at the Library of Al-Balqa' Applied University and Library of Al-Hussein Bin Talal University but the rest of the libraries did not use keywords to refer to its content, which are: Library of University of Jordan, Library of Yarmouk University, Library of Middle East University, and Library of American University of Madaba (AUM). This indicates that persons in charge of site building were not interested in using keywords to facilitate retrieval by search engines.

–OG Meta Properties:

This tag represented by the site's title, type, and URL and also by the site's image and the name of site. The following figure shows how this crown is used:

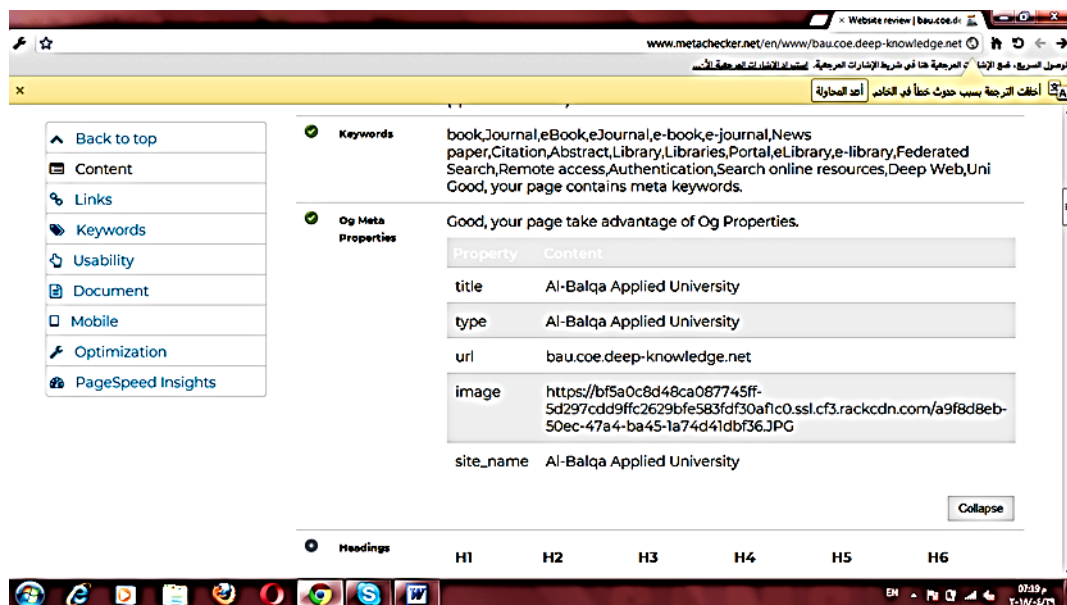


Figure (4) Tags for Websites used by Al-Balqa' Applied University Library

The analysis showed that use of 4 OG Meta Properties Tags for Websites used only by Al-Balqa' Applied University Library and Al-Hussein Bin Talal University Library with (33%) while the rest of studied Universities' Libraries did not benefit from it appropriately, as showed in the table below:

–Headings:

Analysis found that percentage of headings use in the site's content is small with only (17%), which indicates the weak use of headings tag in the studied sites and reached 31 entries for four sites. University of Jordan Library was the most interested to use headings tag in its site with 21 headings at

Images:

Analysis shows that use of images indicate the content of sites, utilized by search engines to access and understand it which was not used as required due to the availability of many images; at all sites in varying numbers, but there were some images that lacked features which indicate its interconnection and its relationship to the content and texts on the site. This calls for the need of those in charge of building sites to add content and images other than existing one to be understood by search engines and to facilitate access to it.

–Text/Html:

The percentage of Text/Html must be between (15%-25%) according to the Metadata Software. Analysis showed percentage of Text/Html that was used by all studied sites is (83%), except for the Middle East University Library site. The highest percentage of Text/Html use is at Al-Balqa Applied University Library with (23%), followed by University of Jordan Library and the Yarmouk University Library with (21%) for each, and then Al-Hussein Bin Talal University Library and American University Library in Madaba with (19%) for each, while Middle East University Library used Text/Html with only (9%) which consider a sign of weakness on the use of this tag.

–Flash:

According to the Metadata Software, the lack of flashes in sites consider a good factor by making it easy for search engines to understand the content of these sites and access them correctly. Analysis found that (83%) of sites do not use flashes, which increases the level of recognition by search engines.

–Iframe:

The lack of frames consider a good measure for search engines to recognize it therefore makes it easy to index it and access its content appropriately. Analysis shows that all studied sites with 100% do not contain frames, which is good for them.

Second: sites' characters of SEO links analysis, which includes tags like URL Rewrite, Underscores in URLs, In-Page Links, External Followed Links, External Links Passing Juice, and Internal Links as shown in figure (5) below:

URL Rewrite: the ability and reproducibility of URL through search engines facilitates its access and good usage.

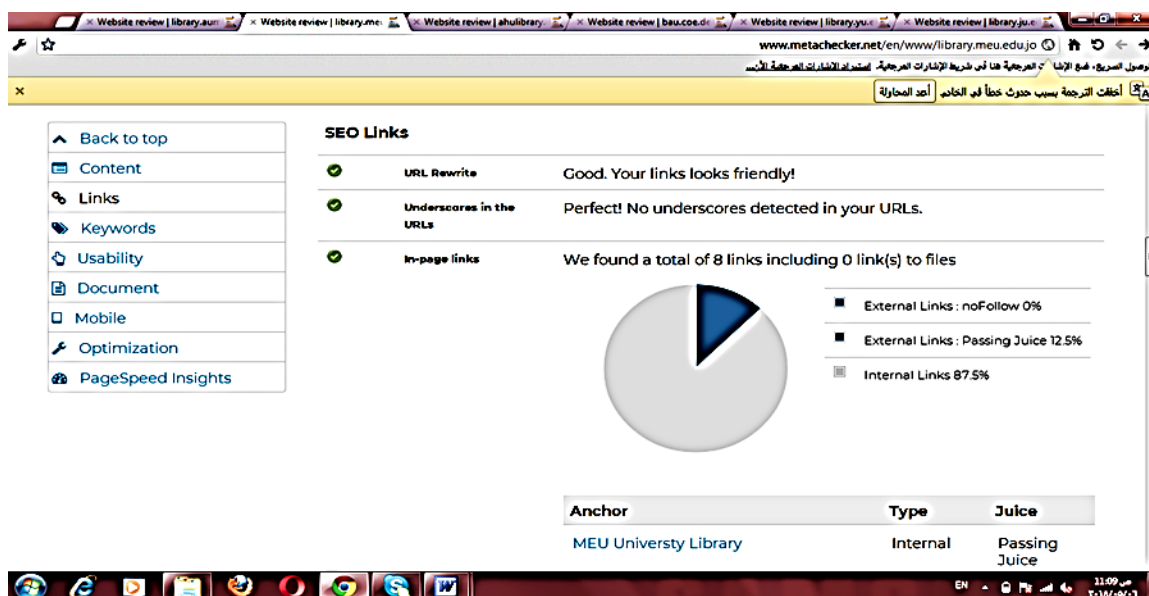


Figure (5) Middle East University Library Links Analysis Form

Analysis shows that University of Jordan Library and the University of Middle East Library sites used it well at a rate of (33%) while the rest of University Library sites did use it badly, which makes it difficult for search engines to access it.

UnderScores in URLs: according to the software, not using underscores in its own links and replacing it with links improve the properties of links. Analysis shows that all links of studied sites have Underscores in URLs except for the Middle East University library site, which makes it difficult for the links' properties between sites.

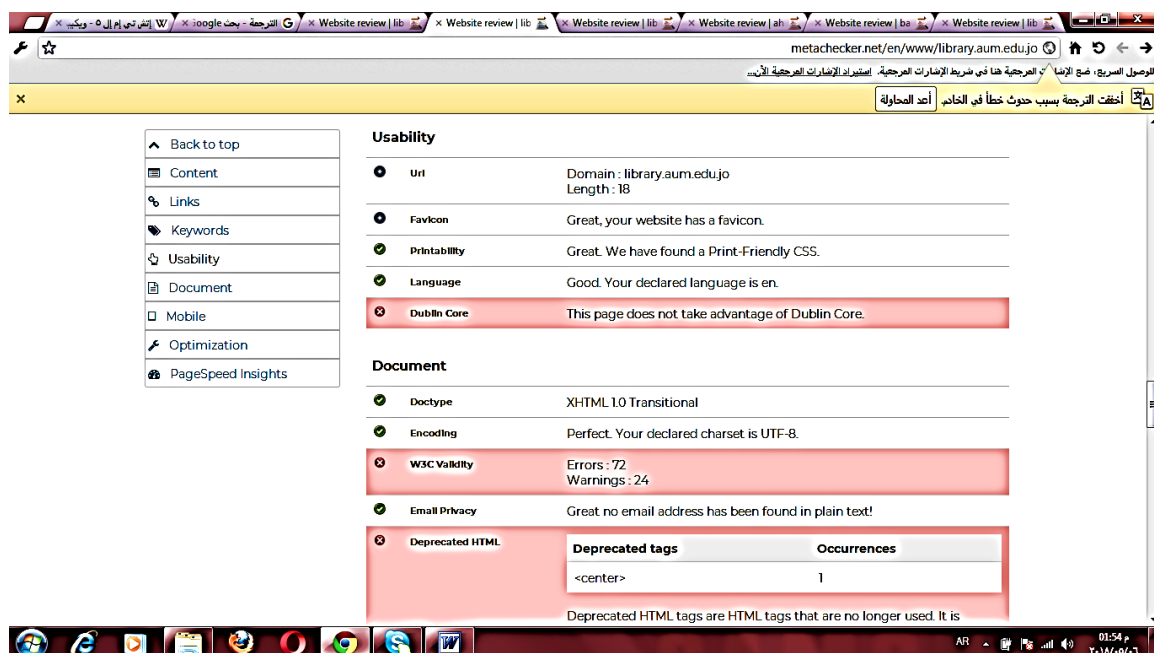
In-Page Links: Metadata Software divides links into three sections:

- A. External Followed Links: external links that use and follow the site.
- B. External Links Passing Juice: the site's use level of external Websites and relations it has with it.
- C. Internal Links: the site's use level of internal links.

Analysis shows that all studied sites contain In-Page Links at a different numbers and percentages (External links that use and follow the site, use of external Websites and the relations it has with internal links). The highest use of these links was by Yarmouk University Library with 75 links, one was related to the files of site and was divided into the following percentages: the following-up of library site with (1.33%), the use of library site by external sites with (30.67%), and the use of internal links with (68%). It was followed by University of Jordan Library site with 63 links, and Al-Balqa University Library site with 39 links, then Al-Hussein Bin Talal University Library site with 36 links and the American University of Madaba Library site with 29 links, while Middle East University Library site has the lowest number of link with only 8 links.

Third: Analysis of tags related to Sites' Usability .

This part includes the following tags: URL, Favicon, Printability and Language, Dublin Core, as shown in figure (6) below:



– Figure (6): **URL domain**

URL: analysis shows that URL domain for each link of studied sites were between (17-33), which is a fairly good percentage for sites and facilitate the process of using and accessing by beneficiaries through search engines.

Favicon: analysis shows that all studied sites used a favorite icon by users of these sites.

Printability: it was found that percentage of using Cascading Style Sheet (CSS) Language in the studied sites amounted to (17%), where CSS used to design webpages in order to control the form of whole site (font, color, size) without the need to write codes or repeat it in each page inside the site. It's possible through one file to perform modifications to all files, which save too much efforts and time. Study found that it's not used in these sites which make it difficult to print them, except at the Library of American University in Madaba (AUM) (Al-Zouki, 2004).

Language: analysis shows that (100%) of sites use the English language in addition to the Arabic language and this is a good factor, which makes it easier for beneficiaries to access the site.

Dublin Core: analysis showed that all sites werenot compliant with the Dublin Core Standard, which answers the second question of study.

Fourth: Analysis of Tags related to Sites' Documents

It includes the following sections:

Doc Type: analysis showed that all sites used HTML5 features to create their pages, making it easier for search engines to read sites' pages and identify the actual page parts of sites.

Encoding: analysis showed that all sites encrypted their documents, i.e., they converted their letters to the unified international lettering system with 8 bits, which indicates the interest of those in charge of building Websites to protect and preserve contents of their sites.

W3C (World Wide Web Consortium) Validity: analysis showed that all studied sites weren't interested in the development of their sites, and there were a number of errors and warnings that should be taken care of by those involved in building and developing sites.

Email Privacy: analysis showed that E-Mail hasn't been written as a normal text at 4 library sites with (67%), where it has been written as normal text only at sites of University of Jordan and Al- Balqa' Applied University Libraries which makes it difficult to use E-Mail by beneficiaries. Therefore, Website designers shouldn't write E-Mail address in the normal text.

Deprecated HTML : analysis showed that HTML Tags were turned off and replaced at 4 library sites with (67%), which indicates the interest of those who build sites to neglect the stopped signs and replace it by new tags, while Library of University of Jordan and Library of American University of Madaba (AUM) did not replace, stop, or discard HTML Tags

8. RESULTS & RECOMMENDATIONS

The study arrived to the following results:

- Study showed that while searching for the studied library sites some were not reached through search engines, but have been accessed through the main site of university.
- Study showed that most of studied library sites didnot have a separate site from the university site and werenot reached through the analysis software.
- Study showed that University of Science and Technology Library and Philadelphia University Library sites had not been activated, therefore it was difficult for analysis program to access them.
- Fifteen Tags have variably been used in the studied library sites out of 22 tags, where Al-Balqa' Applied University(64%), libraries of University of Jordan(59%) Library of Al-Hussein Bin Talal University & Library of Middle East University and Yarmouk University). These sites were the most inclusive with 11 tags at (50%) followed by the American University of Madaba (AUM) with 10 tags at (45%),
- Six tags were used in an excellent way at all sites with (100%), which are (Flash, Ifram, Internal and External links, Language, Doc Type, and Encoding) followed by Text/HTML with (83%).
- Study found poor used tags despite of their importance: Description, Images, Printability, Underscores in URLs, and W3C validity.
- Study found that Universitys' Libraries were not interested in indexing its sites according
- to the Dublin Core Standard despite the importance of indexing the sites, which makes it easily accessible.

The study made the following recommendations:

- 1) Libraries need to create their own Websites separate from the main sites, to enable beneficiaries to access them.
- 2) The need to activate sites that have separate sites to be accessed through the search engines and analysis software spread on the Internet.

- 3) Libraries need to take interest in formulating Meta Tags in its Websites to facilitate the retrieval process by search engines.
- 4) Libraries should make every effort to continuously evaluate its sites through the analysis software deployed on the Internet to improve and develop its Websites.
- 5) Libraries should develop and update its sites and pay attention to errors in it to keep pace with developments of international standards in building Websites.
- 6) Libraries should take care of indexing its sites based on Dublin Core Standards, organize it, and facilitate access to it by users via the search engines.

9. REFERENCES

1. Al-Busaidi, Mohamed bin Khamis & Al-Hinai, Abdullah bin Salem. Application of metadata to library sites in the Sultanate of Oman and their commitment to international standards: an analytical study. *Journal of Arab Center for Research & Studies in Library & Information Sciences*, 2018, **5**(10), p162-196. Doi: 10.12816/0050713/ MD. 908605
<http://search.mandumah.com/Record/908605>
2. Al-Dosari, Fayez bin Abdullah. Metadata Data Description.. King Saud University, Riyadh, Saudi Arabia, 2017. (PhD Thesis).
<https://shms.sa/auttoring>
3. Al-Zuhairi, Talal Nazim. The metadata of Iraqi government websites on the Internet and their impact on the search engine scouting mechanism. *Iraqi Journal of Information Technology*, 2008, **1**(2), 4-22 . <https://www.iasj.net/iasj/issue/7701>
4. Al-Zouki, Ahmed. Introduction to CSS. 2004 . <http://tibanews.com>
5. As-Said, Kamal. Quality of metadata in the Algerian online press:Analytical study of some models currently available. *cybrarians journal*, 2020, 59 ,24.
http://www.journal.cybrarians.info/images/057/cybrarians_journal_057_papers_04.pdf
6. Abdul Hadi, Zain. Data Metadata (Metadata) on Arab Libraries Sites in Egypt and Saudi Arabia: An Empirical Study. *Cybrarians journal*, 2005, **4**.
www.cybrarians.info/journal/no4/metadata.htm
7. Al-Omari, Hanan . Metadata and its importance in describing electronic sources on the Internet, 2009. <http://kauatinfo.blogspot.com>. [Accessed on 4 February 2018].
8. Aimur, Arrows. University libraries and their role in developing scientific research in the electronic environment. Mentouri University-Constantinople, Algeria, 2012. (M.A.)
<http://umc.edu.dz>
9. Moawad, Abdul Hamid. Dublin Core Standard. (2014) Slides _[Accessed on 28 February 2018].

10. . <https://www.slideshare.net/Muawwad/ss-33880827>. [Accessed on 20 February 2018].
11. Mawdooaa Encyclopedia. <http://mawdoo3.com> .[Accessed on 20 February 2018]
12. Wikipedia: the free Encyclopedia: <https://ar.wikipedia.org/wiki>. [Accessed on 25 February 2018].